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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/523,990	03/13/2000	Mou-Shiung Lin	085027-0026	6138

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McDermott Will & Emery LLP
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EXAMINER

WALSH, DANIEL I

ART UNIT	PAPER NUMBER
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2887

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/523,990	LIN ET AL.	
	Examiner	Art Unit	
	DANIEL WALSH	2887	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 44,48,49 and 60-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10-25-10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 44, 61, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coico et al. (US 6278193) in view of Okuda et al. (US 6081040).

Coico et al. teaches a substrate (FIG. 1b and 22), a semiconductor chip (12) over a top surface of said substrate, wherein said semiconductor chip has a front surface facing said top surface of said substrate and a back surface opposite said front surface wherein the chip has multiple pads at the front surface (FIG. 1a and 1b), identification information directly on the back surface of the chip via the alignment marks (21), multiple metal bumps between the pads of the chip and the top surface of said substrate (FIG. 1a-1b, as the chip pads 10 are electrically

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connected to the substrate pads 16 by solder reflow, thermo compression, or conductive adhesives). Accordingly, the use of metal bumps would have been an obvious expedient to produce the expected results of electrical connectivity. Alternatively, as the substrate pads are formed on top of the substrate, the pads themselves can broadly be interpreted as metal bumps/contacts.

Coico et al. teaches the alignment markers 21 can be sensed optically to enable an automated machine vision system to generate the center point and rotation relative to a placement site. However, Coico et al. is silent to an optically transparent layer vertically over said identity of product.

Okuda et al. teaches alignment mark 7 that can be covered with a protection layer 8 to smooth the surface resulting in decreased noise and improved contrast from the beam reflected from the alignment mark (during machine processing). Though explicitly silent to be transparent, the Examiner notes that as the alignment mark is detected optically through the protection layer which results in smoothness and decreasing the noise, it would have been obvious to one of ordinary skill in the art that such a protective layer be transparent to permit for easy detection, as is conventional in the art.

The Examiner notes that the alignment markers are broadly interpreted to read on the limitations of the identity of product, because the Examiner has intended such recited limitations in the product claims as issues of printed matter/intended use that are not functionally related to the substrate. Accordingly, such non functional descriptive material doesn't patentably distinguish the claims from prior art with different types of printed/identifying information/marks, etc., as they are all alternative means/printed/marked of providing

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information (see *In re Gulack/Ngai*). This also applies to the “identity of manufacturer” and “barcode” for claims 61, 65, and their dependents.

Alternatively, the Examiner notes that marks such as alignment marks, can broadly be interpreted as identity of product by themselves, as they identify the product by the markings, and since the specification/claims do not preclude such an interpretation and because the claims/specification do not set forth a specific definition or explanation of “identity of product” that would exclude such an interpretation, and further, since the claims do not recite that the identity of product is provided or printed, merely the shape/size, color, arrangement of parts, etc. of the semiconductor chip itself/connected to the substrate, could be used to identity the product form the back, since the claim merely recites identity of product on the back surface of the chip, and therefore, it would have been obvious to recognize the product based on the view from the back and distinguishing characteristics therefrom.

2. Claims 48-49, 60, 62-64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coico et al./Okuda et al., as discussed above, in view of Flip Chip, as discussed in the previous Office Action.

Re claims 48-49, Coico et al./Okuda et al. are silent to underfill and multiple balls. However, Coico et al. teaches the use of flip chips (col 1, lines 21+ and 45+) and how Coico et al. is directed to assist in their placement.

Flip Chip teaches flip chips with a BGA (page 1-2), including underfill between the substrate and chip and around the metal bumps/contacts, and multiple balls on the bottom surface of the substrate.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Coico et al./Okuda et al. with those of Flip Chip.

One would have been motivated to do this in order to have a well known and conventional means to package a flip chip for low cost and reliability, increased performance, size, etc..

Re claim 60, the solder has been discussed above (see sole figure of Flip Chip).

Re claims 61 and 65, the limitations have been discussed above, wherein the Examiner notes that the type of printed matter/identification information on the chip is a matter of printed matter/intended use not functionally related to the substrate thereon, and therefore is not patentably distinct from the prior art which teaches markings on the substrate as discussed above.

Alternatively, since the claims and specification do not specifically recite or preclude such an interpretation, the Examiner notes that an identity of manufacturer could be identified from the alignment markings, or from the arrangement of the chip/substrate itself, And such an interpretation is not preclude by the claims or specification, since they do not recite that the identity is actually printed or formed on the chip, but merely that it is on the backside. Therefore, it would have been obvious to identify based on the backside of the component itself, by recognizing the chip and therefore its manufacturer.

Re claims 62-68, the limitations have been discussed above, wherein the type of printed matter/information provided is not patentably distinct over the prior art since it is not functionally related to the substrate and is a matter of intended used.

3. Claims 44, 61, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh (US 5075201).

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Re claims 44, 61, and 65 Koh teaches a circuit component comprising a substrate (30), a semiconductor chip (10 FIG. 3) over a top surface of said substrate, wherein said semiconductor chip has a front surface facing said top surface of said substrate and a back surface opposite said front surface, wherein said semiconductor chip comprises multiple pads (12) at said front surface, an identity of product directly on said back surface of said semiconductor chip (FIG> 7, 8, 10), multiple bumps (14) between said multiple pads of said semiconductor chip and said top surface of said substrate, and an optically transparent layer (22) vertically over said identity of product, which is visible through said layer.

Though silent to the multiple bumps being metal, Koh teaches they provide electrical connection. Therefore, it would have been obvious to be metal, in order to conduct/permit electrical connectivity, as is well known in the art, to produce expected results, such as solder.

Re claims 44, 61, and 65, the Examiner notes that the limitations of "identity of product", "identity of manufacturer", and "bar code" all appear to be directed towards limitations of printed matter/intended use. These printed matter/markings are not functionally related to the substrate and appear to be used solely to provide information. Accordingly, they are not patentably distinct from the prior art which also teaches markings to provide information (even though of a different type of information), through the alignment marks (see In re Gulack/Ngai).

Re claim 49, 63, and 67 Koh teaches multiple balls on a bottom surface of the substrate (FIG. 6), wherein (32) are interpreted as balls on a bottom surface of substrate (30) when oriented a certain way.

4. Claims 48-49, 60, 62-64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh, as discussed above, in view of Flip Chip.

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The teachings of Koh have been discussed above.

Koh teaches a semiconductor chip, but is silent to how it is packaged/mounted, such as in a flip chip ball grid array, which would meet the limitations of claims 48-49, 60, 62-64, and 66-68, and re claims 49, 63, and 67 would read on the claims in the preferred orientation of the balls being under the substrate and not between the substrate and chip.

Flip Chip teaches such limitations (p. 1-2).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koh with those of Flip Chip.

One would have been motivated to do this to have a reliable and well known means to package the chip, to produce expected results, such as reduction in size and increased performance.

5. Claims 44, 61, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coico et al., as discussed above, in view of in view of Shimizu (JP405123237A).

The teachings of Coico et al. have been discussed above, wherein the marks 21 can be printed..

Coico et al. is silent to an optically transparent layer directly over said identity of product wherein said identity of product is visible through said optically transparent layer.

Shimizu teaches printing a barcode and then either printing or superposing a transparent resin member on the barcode for wear resistance, scratch resistance, or water resistance, as discussed in the previous Office Action.

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At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Coico et al. with those of Shimizu.

One would have been motivated to do this in order to protect/cover the information while still permitting it to be visible. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

6. Claims 48, 49, 60, 62-64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coico et al./Shimizu, as discussed above, in view of Flip Chip, as discussed above.

The teachings of Coico et al./Shimizu have been discussed above.

Coico et al. /Shimizu are silent to the underfill, balls on the bottom of the substrate, and solder bumps.

Flip Chip teaches such limitations (as discussed above).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Coico et al./Shimizu with those of Flip Chip.

One would have been motivated to do this in order to use known techniques to produce predictable results such as performance/size/underfill/protection/covering of elements and connectivity (conductivity) between elements, as bumps/balls of metal/solder are known in the art to effect connectivity between elements, and underfill is known to provide protection/covering. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

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7. Claims 44, 48, 49, 60, 62-64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyozo et al. (US 5,894,172) in view of Flip Chip, as discussed above, and Shimizu, as discussed above.

Hyozo et al. teaches a chip with a front and back surface where the front surface is a bottom and the back surface is a top, and identity information (of product) directly on said back surface of the chip (FIG. 8). The Examiner notes that the type of information selected is a matter of intended use/printed matter, not functionally related to the substrate and therefore is not patentably distinct as discussed above.. The information 8 is interpreted as machine readable, motivated for increased efficiency and accuracy (machine reading). FIG. 32 teaches a printed barcode, seen as an obvious expedient for machine readable information.

Hyozo et al. is silent to the chip being a flip-chip/the structure of pads, bumps, solder, substrate, and underfill as claimed.

Flip Chip teaches such limitations, as discussed above.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Hyozo et al. with those of Flip Chip.

One would have been motivated to do this to provide identification information on the chip (directly on the chip) that can be printed on the surface of the chip in various location, since no electronics circuit devices are connected on that surface of the chip. Applying such identification information to a flip-chip structure would enable known techniques to be provided on similar devices in a same way to produce predictable results, namely direct application of identification information to flip chip packages which are known to have benefits such as size, for example..

Hyozo et al./Flip Chip are silent to a transparent encapsulant/coating the printed barcode.

Shimizu teaches such limitations (as discussed above) where a barcode is printed and a resin protective coating is applied thereon for protection.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Coico et al./Flip Chip with those of Shimizu in order to apply the teachings of transparent protective coatings over identification information.

One would have been motivated to do this to protect the information while still permitting it to be read (transparent). As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

8. Claims 44, 61, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coico et al., as discussed above, in view of Hiromasa (JP362169448A), as cited in a previous Office Action.

The teachings of Coico et al. have been discussed above.

Coico et al. is silent to an optically transparent layer vertically over said identity of product wherein said identity of product is visible through said optically transparent layer.

Hiromasa teaches a transparent resin through which identification information can be read (FIG. 1, 2, 4, 5), broadly interpreted as an identity of a product. Though silent to a barcode being visible, it would have been obvious to one of ordinary skill in the art to use a barcode to provide machine readable indicia for reliability/accuracy. There mere claiming that the barcode is visible does not appear to effect the structure of the device, as the Examiner believes that information such as chip markings are capable of being read, as in indicia.

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At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Coico et al. with those of Hiromasa in order to apply the teachings of transparent protective coatings over identification information for expected results of smoothness and protecting the information. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

9. Claims 48, 49, 60, 62-64 and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coico et al./Hiromasa, as discussed above, in view of Flip Chip, as discussed in the previous Office Action.

The teachings of Coico et al./Hiromasa have been discussed above.

Coico et al. /Hiromasa are silent to the underfill, balls on the bottom of the substrate, and solder bumps as claimed.

Flip Chip teaches such limitations (see lone drawing).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Coico et al. /Hiromasa with those of Flip Chip.

One would have been motivated to do this in order to use known techniques to produce predictable results, such as underfill/protection/covering of elements and connectivity (conductivity) between elements, as bumps/balls of metal/solder are known in the art to effect connectivity between elements, and underfills are known to provide protection/covering.

The Examiner notes that coming into contact with the front and top surface is an obvious expedient to seal/secure the chip. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

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10. Claims 44, 48, 49, and 60-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyozo et al. (US 5,894,172) in view of Hiromasa, as discussed above, and Flip Chip, as discussed above.

Hyozo et al. teaches a chip with a front and back surface where the front surface is a bottom and the back surface is a top, and identity information (of product) vertically on said back surface of the chip (FIG. 8). The Examiner notes that the type of information selected is a matter of design variation, not functionally related to the substrate and therefore is not patentable. The information 8 is interpreted as machine readable, motivated for increased efficiency and accuracy (machine reading).

Hyozo et al. is silent to the chip being a flip-chip/the structure of pads, bumps, solder, substrate, and underfill as claimed.

Flip Chip teaches such limitations, as discussed above.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Hyozo et al. with those of Flip Chip.

One would have been motivated to do this to provide identification information on the chip (directly on the chip) that can be printed on the surface of the chip in various location, since no electronics circuit devices are connected on that surface of the chip. Applying such identification information to a flip-chip structure would enable known techniques to be provided on similar devices in a same way to produce predictable results, namely direct application of identification information. Underfill contacting the front and top is an obvious expedient for protection/securing of the chip.

Hyozo et al./Flip Chip are silent to a transparent encapsulant/coating.

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Hiromasa teaches such limitations (as discussed above).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Hyozo et al./Flip Chip with those of Hiromasa in order to apply the teachings of transparent protective coatings over identification information.

One would have been motivated to do this to protect the information while still permitting it to be read (transparent).

Though silent to a barcode being visible, it would have been obvious to one of ordinary skill in the art to use a barcode to provide machine readable indicia for reliability/accuracy. There mere claiming that the barcode is visible does not appear to effect the structure of the device, as the Examiner believes that information such as chip markings are capable of being read, as in indicia.

Underfill contacting the front and top is an obvious expedient for protecting/securing of the chip. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

11. Claims 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coico et al./Hiromasa/Flip Chip, as discussed above, in view of Shimizu (JP405123237).

The teachings of Coico et al./Hiromasa have been discussed above.

Coico et al./Hiromasa/Flip Chip is silent to a barcode visible through resin.

Shimizu teaches such limitations (CONSTITUTION).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Coico et al./Hiromasa/Flip Chip with those of Shimizu.

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One would have been motivated to do this to protect the barcode while still being readable/visible.

The Examiner notes that Shimizu is relied upon for the general teaching of barcodes/id information visible through resins.

Underfill contacting the front and top is an obvious expedient for protecting/securing of the chip. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

12. Claims 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyozo et al./ Hiromasa/Flip Chip, as discussed above, in view of Shimizu (JP405123237).

The teachings of Hyozo et al./Hiromasa/Flip Chip has been discussed above.

Hyozo et al./Hiromasa/Flip Chip is silent to a barcode visible through resin.

Shimizu teaches such limitations (CONSTITUTION).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Hyozo et al./Hiromasa/Flip Chip with those of Shimizu.

One would have been motivated to do this to protect the barcode while still being readable/visible.

The Examiner notes that Shimizu is relied upon for the general teaching of barcodes/id information visible through resins.

Underfill contacting the front and top is an obvious expedient for protecting/securing of the chip. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

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13. Claims 44, 61, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh, as discussed above, in view of Shimizu (JP405123237A).

The teachings of Koh have been discussed above, where the markings are imprinted.

Koh is silent to an optically transparent layer directly over said identity of product wherein said identity of product is visible through said optically transparent layer.

Shimizu teaches printing a barcode and then either printing or superposing a transparent resin member on the barcode for wear resistance, scratch resistance, or water resistance, as discussed in the previous Office Action.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koh with those of Shimizu.

One would have been motivated to do this in order to protect/cover the information while still permitting it to be visible. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

14. Claims 48, 49, 60, 62-64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh/Shimizu, as discussed above, in view of Flip Chip, as discussed above.

The teachings of Koh./Shimizu have been discussed above.

Koh /Shimizu are silent to the underfill, balls on the bottom of the substrate, and solder bumps.

Flip Chip teaches such limitations (as discussed above).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koh/Shimizu with those of Flip Chip.

One would have been motivated to do this in order to use known techniques to produce predictable results of performance/size/underfill/protection/covering of elements and connectivity (conductivity) between elements, as bumps/balls of metal/solder are known in the art to effect connectivity between elements, and underfills are known to provide protection/covering. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

15. Claims 44, 61, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh, as discussed above, in view of Hiromasa (JP362169448A), as cited in a previous Office Action.

The teachings of Koh have been discussed above.

Koh is silent to an optically transparent layer vertically over said identity of product wherein said identity of product is visible through said optically transparent layer.

Hiromasa teaches a transparent resin through which identification information can be read (FIG. 1, 2, 4, 5), broadly interpreted as an identity of a product. Though silent to a barcode being visible, it would have been obvious to one of ordinary skill in the art to use a barcode to provide machine readable indicia for reliability/accuracy. There mere claiming that the barcode is visible does not appear to effect the structure of the device, as the Examiner believes that information such as chip markings are capable of being read, as in indicia.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koh with those of Hiromasa in order to apply the teachings of transparent protective coatings over identification information for expected results of

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smoothness and protecting the information. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

16. Claims 48, 49, 60, 62-64 and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh/Hiromasa, as discussed above, in view of Flip Chip, as discussed in the previous Office Action.

The teachings of Koh./Hiromasa have been discussed above.

Koh /Hiromasa are silent to the underfill, balls on the bottom of the substrate, and solder bumps as claimed.

Flip Chip teaches such limitations (see lone drawing).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koh /Hiromasa with those of Flip Chip.

One would have been motivated to do this in order to use known techniques to produce predictable results, such as underfill/protection/covering of elements and connectivity (conductivity)between elements, as bumps/balls of metal/solder are known in the art to effect connectivity between elements, and underfills are known to provide protection/covering.

The Examiner notes that coming into contact with the front and top surface is an obvious expedient to seal/secure the chip. As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

17. Claims 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh/Hiromasa/Flip Chip, as discussed above, in view of Shimizu (JP405123237).

The teachings of Koh/Hiromasa have been discussed above.

Koh/Hiromasa/Flip Chip is silent to a barcode visible through resin.

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Shimizu teaches such limitations (CONSTITUTION).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koh./Hiromasa/Flip Chip with those of Shimizu.

One would have been motivated to do this to protect the barcode while still being readable/visible.

The Examiner notes that Shimizu is relied upon for the general teaching of barcodes/id information visible through resins.

Underfill contacting the front and top is an obvious expedient for protecting/securing of the chip.

As discussed above the type of printed matter/intended use is not patentably distinct from the prior art.

Response to Arguments

18. Applicant's arguments with respect to the rejection(s) of claim(s) using Hikita as a primary reference have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the art above.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ehrichs et al. (US 6593168) teaches a circuit component comprising a substrate (18), a semiconductor chip (10) over a top surface of said substrate, wherein said semiconductor chip

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has a front surface facing said top surface of said substrate and a back surface opposite said front surface, wherein said semiconductor chip comprises multiple pads (20) at said front surface, markings on said front surface of said semiconductor chip (alignment marks, FIG. 1-2), multiple bumps (20) between said multiple pads of said semiconductor chip and said top surface of said substrate. The Examiner notes that (col 5, lines 42+) teaches that the alignment marks can be formed during previous processing steps such that the marks are covered and visible through insulating layer 13, but Ehrichs et al. is silent to the markings/identity of product being visible through an optically transparent layer and wherein the identity of product is directly on the back surface of the chip, instead of the front.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL WALSH whose telephone number is (571)272-2409. The examiner can normally be reached on M-F 9am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Paik can be reached on 571-272-2404. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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